

WHAT IS CLAIMED IS:

1. A direct light illuminating unit of a LCD module, comprising two elongated lamps, each of which is bent into a substantial S-shape having three straight portions and two connection portions connected with the neighboring straight portions respectively, wherein the lamps are mounted side by side on a frame with the straight portions of the lamps being substantially parallel to each other and interval pitches between the straight portions are substantially equal to each other.

2. The illuminating unit as defined in claim 1, wherein lengths of the lamps are in a range between 780 mm and 1200 mm, while lengths of the straight portions are in a range between 230 mm and 390 mm and the interval pitch between the straight portions is in a range between 25 mm to 45 mm, so that the illuminating unit is being applied to a LCD module with nominal size of viewing area in a range from 12 inches to 17 inches and the illuminating unit as defined herein, hence, has a typical luminance in a range between 2000 cd/m² and 8500 cd/m².

3. The illuminating unit as defined in claim 1, wherein lengths of the lamps are preferably in a range between 910 mm and 1080 mm, while lengths of the straight portions are preferably in a range between 270 mm and 350 mm, and the interval pitch between the straight portions are preferably in a range between 28 mm to 42 mm, so that the illuminating unit is preferably applied to LCD modules of 14 inches or 15 inches, in name of its nominal diagonal size of the viewing area and the illuminating unit as defined herein, hence, has a typical luminance in a range between 2000 cd/m² and 8500 cd/m².

4. The illuminating unit as defined in claim 3, wherein a diffuser screen of typically 50% to 60% light transmittance is mounted in front of the lamps and no additional brightness enhancement components are being used, hence, has a typical
5 luminance in a range between 2000 cd/m² and 5000 cd/m², depending on an operation current provided to the lamps.

5. The illuminating unit as defined in claim 1, wherein the lamps are being placed side by side in a symmetrical mirror image fashion.
10

6. The illuminating unit as defined in claim 1, wherein the lamps are being placed side by side in a parallel replica fashion.

7. The illuminating unit as defined in claim 1, wherein the lamps are being
15 powered by an inverter which provides each lamp with AC electricity that is in-phase but inverse in voltage, respectively.